IN THE CLAIMS

This listing of the claims replaces all prior versions of the claims in the application. Note that claims 4, 5, and 16 have been newly canceled, without prejudice or disclaimer.

1. (Currently Amended) An isolated polypeptide ~~encoded by a polynucleotide of claim 3~~ selected from the group consisting of:

a) a polypeptide comprising the amino acid sequence of SEQ ID NO:14,

b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO:14, wherein the polypeptide has pyrroline-5-carboxylate reductase activity,

c) a polypeptide comprising a polypeptide fragment, wherein the polypeptide fragment is a fragment of the amino acid sequence of SEQ ID NO:14, and wherein the polypeptide fragment has pyrroline-5-carboxylate reductase activity, and

d) a polypeptide comprising an immunogenic fragment, wherein the immunogenic fragment comprises at least 10 contiguous amino acid residues of the amino acid sequence of SEQ ID NO:14.

2. (Canceled)

3. (Currently Amended) An isolated polynucleotide encoding a polypeptide selected from the group consisting of:

a) a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:1-8 and SEQ ID NO:10-15,

b) a polypeptide comprising a naturally ~~occuring~~ occurring amino acid sequence at least 90% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:1-8 and SEQ ID NO:10-15,

c) a fragment of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:1-8 and SEQ ID NO:10-15, wherein the fragment has oxidoreductase activity, and

d) an immunogenic fragment comprising at least 10 contiguous amino acid residues of a polypeptide having an amino acid sequence selected from the group consisting of SEQ ID NO:1-8 and SEQ ID NO:10-15.

4.-6. (Canceled)

7. (Withdrawn) A method for detecting a target polynucleotide in a sample, the target polynucleotide having a sequence of a polynucleotide of ~~claim 9~~ claim 26, the method comprising:

(a) hybridizing the sample with a probe comprising at least 20 contiguous nucleotides comprising a sequence complementary to the target polynucleotide in the sample, and which probe specifically hybridizes to the target polynucleotide, under conditions whereby a hybridization complex is formed between the probe and the target polynucleotide or fragments thereof; and

(b) detecting the presence of the hybridization complex, wherein the presence of the hybridization complex correlates with the presence of the target polynucleotide in the sample.

8. (Withdrawn) A method of detecting a target polynucleotide in a sample, the target polynucleotide having a sequence of a polynucleotide of ~~claim 9~~ claim 26, the method comprising:

a) amplifying the target polynucleotide or fragment thereof using polymerase chain reaction amplification, and

b) detecting the presence or absence of the amplified target polynucleotide or fragment thereof, and, optionally, if present, the amount thereof.

9. (Previously Presented) An isolated polynucleotide selected from the group consisting of:

a) a polynucleotide comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:16-30,

b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence selected from the group consisting of SEQ ID NO:16-30,

c) a polynucleotide complementary to a polynucleotide of a),

d) a polynucleotide complementary to a polynucleotide of b), and

e) an RNA equivalent of a)-d).

10. (Previously Presented) An isolated polynucleotide of claim 9, comprising a polynucleotide sequence selected from the group consisting of SEQ ID NO:16-30.

11. (Previously Presented) An isolated polynucleotide comprising at least 60 contiguous nucleotides of a polynucleotide selected from the group consisting of:

a) a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:29,

b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to the polynucleotide sequence of SEQ ID NO:29,

c) a polynucleotide complementary to the polynucleotide of a),

d) a polynucleotide complementary to the polynucleotide of b), and

e) an RNA equivalent of a)-d).

12. (Previously Presented) A recombinant polynucleotide comprising a promoter sequence operably linked to a polynucleotide of claim 3.

13. (Previously Presented) A cell transformed with a recombinant polynucleotide of claim 12.

14. (Previously Presented) A method for producing a polypeptide encoded by a polynucleotide of claim 3, the method comprising:

a) culturing a cell under conditions suitable for expression of the polypeptide, wherein the cell is transformed with a recombinant polynucleotide, and the recombinant polynucleotide comprises a promoter sequence operably linked to a polynucleotide of claim 3; and

b) recovering the polypeptide so expressed.

15.-20. (Canceled)

21. (Withdrawn) A method of screening a compound for effectiveness in altering expression of a target polynucleotide, wherein the target polynucleotide comprises a sequence of ~~claim 10~~ claim 25, the method comprising:

a) exposing a sample comprising the target polynucleotide to a compound, under conditions suitable for the expression of the target polynucleotide,

b) detecting altered expression of the target polynucleotide, and

c) comparing the expression of the target polynucleotide in the presence of varying amounts of the compound and in the absence of the compound.

22. (Withdrawn) A method of assessing toxicity of a test compound, the method comprising:

a) treating a biological sample containing nucleic acids with the test compound,

b) hybridizing the nucleic acids of the treated biological sample with a probe comprising at least 20 contiguous nucleotides of a polynucleotide of ~~claim 9~~ claim 26 under conditions whereby a specific hybridization complex is formed between the probe and a target polynucleotide in the biological sample, the target polynucleotide comprising a polynucleotide sequence of a polynucleotide of ~~claim 9~~ claim 26 or fragment thereof,

c) quantifying the amount of hybridization complex, and

d) comparing the amount of hybridization complex in the treated biological sample with the amount of hybridization complex in an untreated biological sample, wherein a difference in the amount of hybridization complex in the treated biological sample indicates potential toxicity of the test compound.

23. (Currently Amended) An isolated polynucleotide of claim 3, encoding a polypeptide selected from the group consisting of:

a) a polypeptide comprising the amino acid sequence of SEQ ID NO:14,

b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO:14, wherein the polypeptide has pyrroline-5-carboxylate reductase activity,

c) a fragment of a polypeptide having the amino acid sequence of SEQ ID NO:14, wherein the fragment has pyrroline-5-carboxylate reductase activity, and

d) an immunogenic fragment of a polypeptide having the amino acid sequence of SEQ ID NO:14, wherein the immunogenic fragment comprises at least 10 contiguous amino acid residues of the amino acid sequence of SEQ ID NO:14.

24. (Previously Presented) An isolated polynucleotide of claim 3, encoding a polypeptide selected from the group consisting of:

a) a polypeptide comprising the amino acid sequence of SEQ ID NO:14, and

b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO:14, wherein the polypeptide has pyrroline-5-carboxylate reductase activity.

25. (Previously Presented) An isolated polynucleotide of claim 3, encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:14.

26. (Previously Presented) An isolated polynucleotide of claim 9, selected from the group consisting of:

a) a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:29,

b) a polynucleotide a naturally occurring polynucleotide sequence at least 90% identical to the polynucleotide sequence of SEQ ID NO:29,

c) a polynucleotide complementary to the polynucleotide of a),

d) a polynucleotide complementary to the polynucleotide of b), and

e) an RNA equivalent of a)-d).

27. (Previously Presented) An isolated polynucleotide of claim 9, selected from the group consisting of:

a) a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:29,

b) a polynucleotide complementary to the polynucleotide of a), and

c) an RNA equivalent of a)-b).

28. (New) An isolated polypeptide of claim 1, selected from the group consisting of:

a) a polypeptide comprising the amino acid sequence of SEQ ID NO:14, and

b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO:14, wherein the polypeptide has pyrroline-5-carboxylate reductase activity.

29. (New) An isolated polypeptide of claim 1, comprising the amino acid sequence of SEQ ID NO:14.

30. (New) A method of screening for a compound that modulates the activity of the polypeptide of claim 1, the method comprising:

a) combining the polypeptide of claim 1 with at least one test compound under conditions permissive for the activity of the polypeptide of claim 1,

b) assessing the activity of the polypeptide of claim 1 in the presence of the test compound, and

c) comparing the activity of the polypeptide of claim 1 in the presence of the test compound with the activity of the polypeptide of claim 1 in the absence of the test compound, wherein a change in the activity of the polypeptide of claim 1 in the presence of the test compound is indicative of a compound that modulates the activity of the polypeptide of claim 1.